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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,956	07/08/2003	Victor Suen	02-6052	7138

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EXAMINER	
CRAWFORD, JASON	
ART UNIT	**PAPER NUMBER**
2819	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/614,956	SUEN ET AL.	
	Examiner	Art Unit	
	Jason Crawford	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-8 and 17-20* is/are allowed.

6)☒ Claim(s) *9,10 and 12-16* is/are rejected.

7)☒ Claim(s) *1,11,14 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1,14 and 17 are objected to because of the following informalities:

Claim 1 recites the limitations "dynamic switchable termination" and "termination impedance" in lines 6 and 7 respectively. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim 14 recites the limitation "the device", "dynamic switchable termination" and "termination impedance" in Lines 1, 2 and 3 respectively. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim 17 recites the limitation "termination impedance" in Line 7. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 9-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Nair (US 2002/0084817).

In regards to Claim 9, Nair discloses of an I/O device (120 in Fig 2B) comprising an output signal pad (pad at which 102 is output, see **Reference Fig A** below) configured for transferring a data signal (102) to another device coupled thereto, an output driver (130) comprising a first transistor and a second transistor (See **Reference Fig A**) for providing the data signal (102) to the output signal pad, and a duty cycle controller (140A, 140B) comprising a first logic circuit (240A) coupled to a gate of the first transistor and a second logic circuit (240B) coupled to a gate of the second transistor wherein the duty cycle controller (140A, 140B) is configured for balancing the duty cycle of the data signal with respect to a clock signal (101, the changed duty cycles of the first and second transistor will be output based on the value of the clock signal, which is gated to the other transistors). (Fig 2B, Paragraphs 0022-0024)

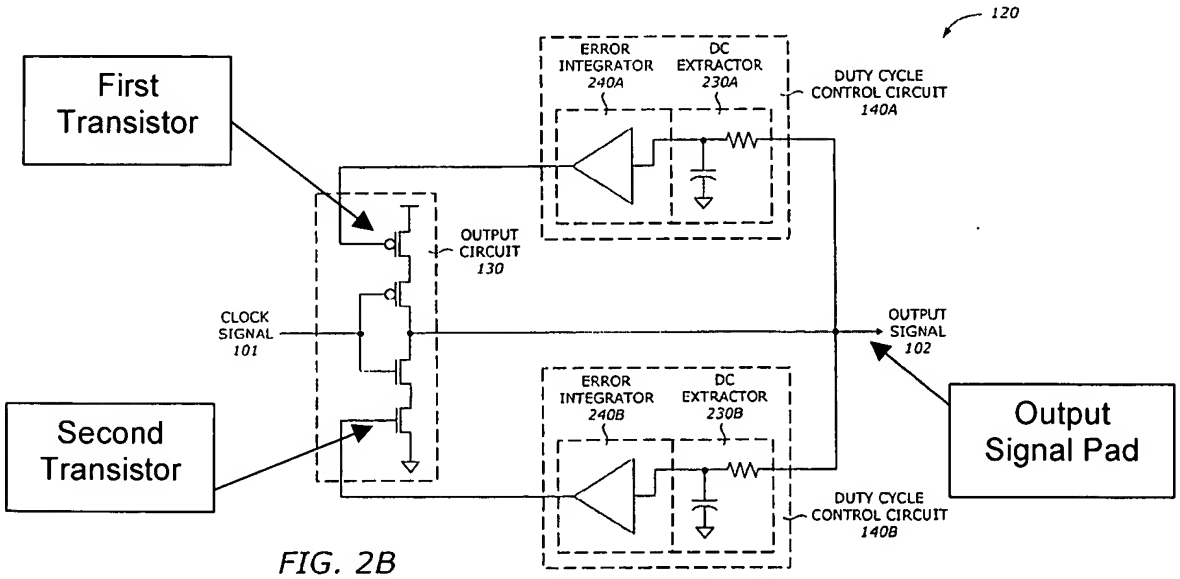

FIG. 2B

Reference Fig A (Claims 9, 12)

In regards to Claim 10, Nair discloses of the first logic device (240A) and the second logic circuit (240B) are adapted for gating the data signal (102) to the output driver (130) using the clock signal (101). (Fig 2B, Paragraphs 0022-0024)

In regards to Claim 12, Nair discloses of a controller (110 of Fig 1) for determining when the data signal (102) is to be transferred to the signal pad (see **Reference Fig A**). (Fig 1, 2A, Paragraphs 0014-0017 and 0022-0024)

3. Claims 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (US 2002/0118037).

In regards to Claim 14, Kim discloses of an I/O cell in Fig 8 comprising an input signal pad (200) configured for receiving a signal from a device and a dynamic switch able termination (31, 33) coupled to the input signal pad (200) and configured for providing termination impedance when the I/O cell is receiving the signal (Paragraph 0041), wherein the termination impedance comprises process, voltage and temperature (PVT) compensated resistance (Paragraph 0008). (Fig 6, 8, Paragraph 0008, 0041-0048)

In regards to Claim 15, Kim discloses of the I/O cell further comprising a controller (80) for determining when the signal is to be received from the signal pad (200). (Fig 6, 8, Paragraph 0041-0048)

In regards to Claim 16, Kim discloses of the dynamic switch able termination (31, 33) comprises a logic gate (transistors NA1-NA4, NB1-NB4 in Fig 5) configured for receiving an enable signal (output from 61 and 63) from the controller (80) when the

signal is to be received, wherein the logic gate (NA1-NA4, NB1-NB4) enables the termination impedance based on the enable signal (output from 61 and 63). (Fig 5, 6, 8, Paragraph 0041-0048)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nair (US 2002/0084817) in view of Hossain (US 2002/0135406).

In regards to Claim 13, Nair discloses of an I/O device as found within the explanation of Claim 9 above.

Nair does not directly disclose of the first and second transistors being process, voltage and temperature (PVT) compensated transistors.

Hossain discloses of an output driver in Fig 2 wherein the parameters of transistors are adjustable based on PVT variations. (Fig 2, Paragraph 0015 Lines 7-20)

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to use PVT compensated transistors as taught by Hossain to maintain the proper output by controlling the output impedance and accounting for PVT variations.

Allowable Subject Matter

5. Claims 1-8 and 17-20 are allowed. The following is an examiner's statement of reasons for allowance:

In regards to the above claims, the prior art does not directly disclose of an I/O cell nor a method for transceiving data comprising a bidirectional signal pad for transferring a first signal and for receiving a second signal, *a duty cycle controller configured for balancing the duty cycle of the first signal with respect to a clock signal* ***and*** *a dynamic switchable termination coupled to the signal pad for providing a termination impedance when receiving the second signal*, nor would it have been obvious to one of ordinary skill in the art to do so.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In regards to Claim 11, the prior art does not directly disclose of the first logic device of claim 9 being a flip-flop, nor would it have been obvious to one of ordinary skill in the art to do so.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Crawford whose telephone number is 571-272-6004. The examiner can normally be reached on Monday - Friday 7am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rex Barnie can be reached on 571-272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMC

Rexford Barnie
REXFORD BARNIE
SUPERVISORY PATENT EXAMINER